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SOME REMARKS ON THE MAXIMUM OF A ONE-DIMENSIONAL DIFFUSION PROCESS

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Abstract: For a certain class of one-dimensional diffusions $X(t)$, we study the distribution of $\max_{t\in[0,T]} X(t)$ and the distribution of the first instant at which $X(t)$ attains the maximum by reducing $X(t)$ to Brownian motion. Moreover, for T fixed or random, we study the asymptotics of threshold crossing probability, i.e. the rate of decay of $P\Big(\max_{s\in[0,T]} X(s) > z\Big)$ as z goes to infinity. Some examples are also reported.

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